Guidance to Demonstrating Consistency with the Climate Action Plan

For Discretionary Projects Subject to CEQA

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1 INTRODUCTION

In September 2015, the City of Carlsbad adopted a Climate Action Plan (CAP) that outlines actions that the city will undertake to achieve its proportional share of state greenhouse gas (GHG) emissions reductions. The CAP is a plan for the reduction of GHG emissions in accordance with California Environmental Quality Act (CEQA) Guidelines Section 15183.5. Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of the CAP.

The CAP established a screening threshold of 900 metric tons carbon dioxide equivalent ($MTCO_2e$) per year for new development projects in order to determine if a project would need to demonstrate consistency with the CAP through the Consistency Checklist and/or a self-developed GHG emissions reduction program (Self-developed Program). Projects that are projected to emit fewer than 900 $MTCO_2e$ annually would not make a considerable contribution to the cumulative impact of climate change, and therefore, do not need to demonstrate consistency with the CAP.

For proposed projects at or above the screening threshold of 900 $MTCO_2e$, applicants would need to demonstrate consistency with the CAP through completion of a CAP Consistency Checklist (Checklist). The purpose of the Checklist is to provide a streamlined review process for proposed new development projects that are subject to discretionary review and require environmental review pursuant to the CEQA. A completed Checklist demonstrates that a proposed project complies with the CAP. While applicants are required to complete the entire Checklist for any proposed project that is at or above the screening threshold, they may choose to replace any infeasible GHG reduction measures in Step 2 of the Checklist with alternate measures. If applicants can show through supporting documentation and independent GHG calculations that the proposed mix of GHG reduction measures would achieve the same GHG reductions as the omitted Checklist measure(s), then the proposed project would be considered consistent with the CAP. This guidance is intended to provide direction to applicants on how to show CAP consistency through either approach.

2 CLIMATE ACTION PLAN SUMMARY

The city's CAP contains a baseline inventory of GHG emissions for 2005, an updated baseline inventory for 2011, a business-as-usual (BAU) projection of emissions to 2035 (corresponding to the General Plan horizon year), a calculation of the city's targets based on a reduction from the 2005 baseline, and emission reductions with implementation of the CAP.

The city emitted a total of 630,310 $MTCO_2e$ in 2005 and 705,744 $MTCO_2e$ in 2011. Accounting for future population and economic growth, the city projects GHG emissions of 1,007,473 $MTCO_2e$ in 2035. The CAP set a target to achieve a 15 percent reduction from the 2005 baseline by 2020 based on the recommendation by the California Air Resources Board (ARB). The CAP also includes a reduction target to reduce emissions below the 2005 baseline by 49 percent by 2035. Therefore, the city must implement strategies that reduce emissions to 535,763 $MTCO_2e$ in 2020 and 321,458 $MTCO_2e$ in 2035. This data is shown in Table 1.

Table 1 Climate Action Plan Forecast Community Emissions with CAP GHG Reduction Measures and Targets (metric tons of carbon dioxide equivalent)

	2020	2035
2005 Baseline Emissions	630,310	630,310
Projected Emissions (Business-as-Usual)	818,895	1,007,473
City Target Emissions Levels	535,763	321,458
Forecast Community Emissions with CAP GHG Reduction Measures	419,962	269,637

By meeting the 2020 and 2035 targets, the city will meet the 2030 state goal identified in Senate Bill 32 and maintain a trajectory to meet its proportional share of the 2050 state target identified in Executive Order S-3-05. Future actions anticipated by the state and possible federal initiatives would reduce the need for local measures and help ensure broader participation in emission reduction efforts.

The CAP accounts for GHG emission reductions that will be achieved through state and federal actions, and General Plan land use policies and mobility improvements. In addition, the CAP has identified the following local GHG reduction measures to achieve the 2035 target:

- Residential, commercial and industrial photovoltaic systems
- Building cogeneration
- Single-family, multi-family and commercial energy efficiency retrofits
- Commercial commissioning
- CALGreen building code
- Solar water heater/heat pump installation
- Efficient lighting standards
- Increased zero-emissions vehicle travel
- Transportation Demand Management (TDM)
- Citywide renewable projects
- Water delivery and conservation

The city's ability to grow its population and economy while meeting the GHG reduction targets will require broad-based participation from the entire community. Everyone who lives, works, shops, or plays in the city contributes to the community's GHG emissions, and everyone will need to be part of the solution. This includes new development that is anticipated in the city through 2035. The CAP is intended to achieve reductions from all sources and sectors, existing and new. This is emphasized by the fact that the city's reduction targets are a reduction below baseline emissions. Therefore, GHG emissions in the city need to be reduced below existing levels while additional emissions are generated by growth through 2035. As such, new development can contribute its fair-share of GHG reductions by complying with CAP strategies, goals and actions that were determined to be applicable through the Checklist development process, or through a Self-developed Program. The following sections provide additional information about the steps for new development projects to demonstrate consistency with the CAP.

3 CEQA STREAMLINING PROVISIONS OF THE CLIMATE ACTION PLAN

The adopted CAP Section 5.3 "Project Review Thresholds and Checklist", describes a screening threshold and associated size-based criteria to determine if a project would be subject to the provisions of the CAP. Projects that are required to show consistency with the CAP can follow one of two pathways as provided in the CAP document: 1) a Checklist Approach or 2) a Self-developed Program Approach. Both pathways, and the screening criteria are described in further detail below.

As stated in the CAP, the city committed to developing a refined CEQA streamlining approach to allow project-specific environmental documents, if eligible, to tier from and/or incorporate by reference the CAP's programmatic review of GHG impacts in their cumulative impact analysis. The city's CAP meets the requirements under Section 15183.5 of the CEQA Guidelines as a qualified plan for the reduction of GHG emissions for use in cumulative impact analysis pertaining to development projects. The Checklist and/or Self-developed Program approach provide a streamlined review process for the GHG emissions analysis of proposed new development projects that are subject to discretionary review and trigger environmental review pursuant to CEQA.

3.1 PROJECT SCREENING THRESHOLDS

The CAP established a screening threshold of 900 $MTCO_2e$/year for new development projects in order to determine if a project would need to demonstrate consistency with the CAP through the Consistency Checklist and/or a Self-developed Program. Projects that are projected to emit fewer than 900 $MTCO_2e$ annually would not make a considerable contribution to the cumulative impact of climate change, and therefore, do not need to demonstrate consistency with the CAP. The threshold is based on guidance from the California Air Pollution Control Officers Association (CAPCOA) which published options for screening thresholds to guide lead agencies in determining which projects require GHG analysis and mitigation for significant impacts related to climate change (CAPCOA 2008). Table 2 lists types and sizes of projects that correspond to the 900 $MTCO_2e$ screening threshold; projects equal to or exceeding these thresholds would be subject to CAP measures. For project types not listed in this table, the need for GHG analysis will be made on a project-specific basis. Section 4 provides guidance on quantifying project emissions.

Table 2 Project Review Thresholds

Project/Plan Type	Screening Threshold
Single-Family Housing	50 dwelling units
Multi-Family Housing	70 dwelling units
Office	35,000 square feet
Retail Store	11,000 square feet
Grocery Store	6,300 square feet

Source: CAPCOA 2008

Note: For project types not listed in this table, the need for GHG analysis and mitigation will be made on a project-specific basis, considering the 900 $MTCO_2e$ screening threshold.

It should be noted that the 900 $MTCO_2e$ level must be strictly applied as a screening threshold and is not intended to be a threshold of significance. In other words, projects that exceed this emissions level may not propose mitigation measures to reduce emissions below 900 $MTCO_2e$. If a project's emissions are projected to be below 900 $MTCO_2e$ after accounting for project design features, these features need to be explicitly defined in the project description.

For proposed projects at or above the screening threshold of 900 $MTCO_2e$, applicants are required to complete the CAP Consistency Checklist, which is meant to provide a streamlined review process for proposed new development projects that are subject to discretionary review and require environmental review pursuant to CEQA. A properly completed Checklist documents how a proposed project complies with the CAP, and in so doing, demonstrates that the project's contribution to climate change impacts is not cumulatively considerable. Alternatively, a project may use a Self-developed Program to demonstrate that it would achieve an equivalent amount of reduction as the Checklist approach.

3.2 DEMONSTRATING CONSISTENCY WITH THE CLIMATE ACTION PLAN

The CAP identifies two fundamental ways a project can demonstrate consistency with CAP GHG reduction measures and actions: the Checklist approach and the Self-developed Program approach. The CAP Consistency Checklist provides direction about measures to be incorporated in individual projects, which will be used during the normal development review process. The Self-developed Program Approach enables a project proponent to propose GHG reduction measures/project features that would result in the same outcome as complying with checklist measures. Under either approach, project features that help a project meet the provisions of the CAP shall then become part of project conditions of approval.

3.2.1 Land Use Consistency

The first step in the CAP Consistency Checklist assesses a project's consistency with the growth projections and land use assumptions made in the CAP. If a project is consistent with the projections in the CAP, its associated growth in terms of GHG emissions was accounted for in the CAP's BAU projection and within the scope of the CAP's analysis and program of measures that contribute towards reducing overall city GHG emissions below identified GHG targets. As discussed in the Final Environmental Impact Report for the General Plan Update (GPU FEIR), if a project is consistent with the CAP, it would result in less than significant GHG emissions and would not result in a cumulatively considerable GHG impact.

If a project is consistent with the existing General Plan land use designation(s), it can be determined to be consistent with the CAP projections and can move forward to Step 2 of the Checklist. However, not all projects that are inconsistent with existing General Plan land use and zoning designations would be inconsistent with the CAP's projections. For example, if a project includes a land use plan and/or zoning designation amendment that would result in an equivalent or less GHG-intensive project when compared to the existing designations, it would still be within the projections assumed in the CAP and can move forward to Step 2 of the Checklist. Estimated GHG emissions under the existing and proposed designations would need to be provided to support this conclusion. Emissions must be quantified using the methodology described in Section 4 below.

If a land use and/or zoning designation amendment results in a more GHG-intensive project, the project is required to offset the increase in emissions over existing designations in accordance with the recommended methodologies in Section 4, and demonstrate consistency with applicable CAP measures.

3.2.2 Climate Action Plan Reduction Measures Consistency

The CAP identifies specific goals and actions supporting each GHG reduction measure. These actions include a combination of ordinances, programs, incentives, outreach, and education activities. As CAP implementation occurs, each action will be assessed and monitored.

As described in the CAP, there is an existing framework of federal, state, regional, and local policies and regulations that contribute to reducing GHG emissions. The CAP shows that reductions from existing regulations, in combination with additional General Plan policies and actions, would not be adequate to meet established targets. Local actions that reduce emissions from both the built environment and new development would be necessary. The CAP includes targets that relate to a percent reduction in GHG emissions below baseline levels. While the city will achieve reductions outlined in the CAP through capital programming, incentives, awareness and education, and planning processes and ordinances, new development can do its fair share in helping the city achieve its targets by incorporating measures

consistent with the CAP. This also provides new development with the benefit of using CEQA streamlining provisions for addressing its GHG impacts.

CHECKLIST APPROACH

Based on the foregoing, the intent of the CAP Consistency Checklist is to identify measures that would apply to new development and establish clear questions that can be used to assess a project's consistency with CAP measures. The Checklist will be updated by the city as needed to incorporate new GHG reduction techniques or to comply with later amendments to the CAP or local, state or federal law. Certain measures in the Checklist may otherwise become mandatory through future updates to state codes or through adoption of local ordinances. These measures would then be removed from the Checklist. If the CAP monitoring process (see CAP Chapter 5) reveals the need for further reductions to stay on track to meet reduction targets, the Checklist measures may be updated to include additional applicable measures for new development.

The CAP is the city's adopted policy document to reduce GHG emissions. Reduction measures and actions in the CAP were evaluated through the CAP development process and represent the most relevant and effective pathway to achieving established targets, as determined by the city. As such, the city strongly encourages project applicants to use the CAP Consistency Checklist to show consistency with the CAP and avail themselves of its streamlining benefits. By implementing CAP applicable measures, each project would contribute towards the city meeting its targets. The Checklist approach would not require quantification of GHG emissions and reductions from each measure because the city's CAP has performed the analysis at a programmatic level. However, project applicants would still need to quantify design parameters to demonstrate compliance with Checklist measures (e.g., kilowatts [kW] of solar photovoltaics [PV] or number of electric vehicle [EV] charging spaces). Project applicants that propose to use the Self-developed Program approach would need to quantify equivalent reductions if an alternate measure is proposed in lieu of a Checklist measure. Details on the Self-developed Program approach are provided in the following section.

SELF-DEVELOPED PROGRAM APPROACH

The CAP provides that project applicants can develop their own program that would result in the same outcome as the Checklist approach. This means that a project can substitute an alternate measure for a CAP Checklist measure, as long as it can be demonstrated that the alternate measure would achieve the same (or greater) quantitative reduction as the Checklist measure. This scenario would apply in case a Checklist measure is determined to be infeasible for a project, or if the applicant can justify that the alternate measure is equally as effective as to what is proposed in the CAP. Project applicants would still need to complete the entire Checklist (i.e., Steps 1 and 2) for any proposed project. Once a determination is made on measures that would not be feasible for a project, applicants can proceed to complete the Self-developed Program. If applicants can show, through supporting documentation and verifiable GHG calculations that the proposed mix of GHG reduction strategies would achieve the same GHG reductions as the Checklist approach and would not otherwise impair the city's ability to reach its reduction targets, then the proposed project would be considered consistent with the CAP.

A Self-developed Program would require applicants to quantify their GHG emissions in 2035, consistent with the CAP horizon year, and estimate reductions from the Checklist measure(s) that they propose to replace with alternate measures. The city's recommended methodology to perform this analysis is provided in Section 4. In contrast, the Checklist approach would not require quantification of emissions and reduction measures as the city's CAP has performed this analysis at a programmatic level. Thus, the Checklist approach would be more efficient and affords the maximum streamlining benefits for development projects. The city strongly encourages the use of the Checklist as the preferred method to show CAP compliance. The Self-developed Program is intended to provide flexibility to projects that

cannot complete the Checklist in its entirety, but is likely to be a more time- and labor-intensive process, both for the applicant and the city.

Appendix E to the CAP provides a non-exclusive list of potential mitigation measures that can be applied at the project level to reduce GHG emissions. Other measures not listed in the Appendix may be considered, provided that their effectiveness in reducing GHG emissions can be demonstrated. The type, character, and level of mitigation would depend on the project type, size, location, context, and other factors. The availability of mitigation measures can change over time as well, with new technologies, building materials, building design practices, and other changes. Therefore, in developing project-specific reductions measures, the city recommends that a project applicant refer to current guidance from CAPCOA, ARB, the Governor's Office of Planning and Research (OPR), the California Attorney General, and the San Diego Association of Governments (SANDAG) to determine applicable mitigation measures and estimate their effectiveness. The remaining sections of this Guidance outline ways applicants can quantify project-specific GHG emissions, including reduction strategies not identified in the CAP.

4 QUANTITATIVE GREENHOUSE GAS GUIDANCE

4.1 QUANTIFYING PROJECT-SPECIFIC GHG EMISSIONS

Quantifying project-specific GHG emissions is necessary under the following circumstances: 1) to determine whether a project exceeds the screening threshold as described in Section 3.1[1]; 2) the project proposes a land use or uses inconsistent with the growth assumptions underlying the CAP, as described in Section 3.2.1; or 3) the project proposes to demonstrate CAP consistency by using reduction strategies not identified in the CAP (i.e., self-developed program). Direct and indirect emissions of GHGs from the project, area- and mobile-source emissions, and indirect emissions from in-state energy production and water consumption (energy for conveyance, treatment, distribution, and wastewater treatment), must be quantified and disclosed in the application. One-time, temporary GHG emissions (such as vegetation clearing, site preparation and construction), as well as operational emissions must be included.

4.1.1 Methods of Analysis

While there are a number of analytical tools available to estimate project-level GHG emissions, the city strongly recommends using the latest version of the California Emissions Estimator Model (CalEEMod), a free, publicly-available computer model developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with various air quality districts throughout the state. Alternative supplemental tools may be used in consultation with the city, as long as they are representative of project conditions and can be substantiated.

Operational GHG emissions from a land use development project can be calculated using a variety of sources and modeling tools. ARB's emissions factor model, EMFAC 2014, can be used to estimate annual carbon dioxide (CO_2) and methane (CH_4) emissions from vehicle miles travelled (VMT) generated by the project. VMT-related emissions should be based on project trip generation rates, supported by a project-specific traffic study (if available) or representative rates from SANDAG (if no project study data are available) (SANDAG 2002). Trip distances used to estimate VMT should also be representative of the project. EMFAC 2014 is ARB's latest update to the EMFAC model series and takes into account effects of future policies and economic forecasts. Mobile-source emissions can also be estimated using

[1] This GHG quantification step may be skipped if project includes all applicable CAP Checklist measures.

the emission factors provided in CalEEMod (which are based on the EMFAC 2014 database) and the CalEEMod User Guide, alongside estimates of project-generated vehicle trips and total VMT.

Emissions from natural gas combustion used for space heating, water heating, and fireplaces can be estimated based on the project-specific consumption levels, using GHG emission factors contained in CalEEMod. Emissions from landscape maintenance equipment can be estimated using the applicable module in CalEEMod (SCAQMD 2013).

Indirect emissions associated with electricity consumption (i.e., CO_2, nitrous oxide [N_2O], and CH_4) can be calculated in CalEEMod based on utility emission factors for San Diego Gas and Electric (SDG&E). GHG emissions from water consumption and wastewater treatment can be estimated based on the volume of water that would be required by the project and energy intensity factors for water supply in southern California published by the California Energy Commission (CEC) and incorporated into CalEEMod (CEC 2006:2). Indirect GHG emissions associated with the quantity of solid waste generated by the land uses can be estimated using the applicable module in CalEEMod and project-specific waste disposal information, if available.

The loss in sequestered carbon can also be estimated in CalEEMod using the vegetation module. This would account for the types and amounts of vegetation that would be removed permanently because of construction and operation of the proposed project. Total one-time GHG emissions from the loss in carbon sequestration can then be amortized over the operational life of the project and considered in combination with on-going operational emissions. Accounting for the loss in sequestered carbon in this way allows for the evaluation of whether ongoing operation of the proposed land uses would be efficient enough to "recoup" the former sequestration of these one-time emissions.

For all emissions sources listed above, default CalEEMod assumptions may be used if project-specific data are not available. Modeling data and results are subject to city review and approval, and applicants should provide substantial evidence for estimated emissions and underlying assumptions in the technical analysis.

Please discuss with City of Carlsbad staff if applicant desires to use other GHG modeling tools before performing analysis.

OPERATIONAL EMISSIONS

In order to determine if reduction measures not included in the CAP will achieve the same levels of GHG reductions as Checklist measures, operational GHG emissions for the project should be calculated as a first step using CalEEMod for the year 2035 (i.e., the horizon year of the CAP). As mentioned above, CalEEMod is the modeling tool recommended by the city. Direct and indirect emissions from the project should be estimated using the most recent version of CalEEMod (currently Version 2016.3.1) in accordance with the CalEEMod User's Guide. CalEEMod was designed with default assumptions supported by substantial evidence to the extent available at the time of programming. The functionality and content of CalEEMod is based on fully adopted methods and data. However, CalEEMod was also designed to allow the user to change the defaults to reflect site- or project-specific information, when available, provided that the information is supported by substantial evidence. If the user chooses to modify any defaults, an explanation will be required in the "Remarks" box found at the bottom of the screen to justify and support the modification before the user is able to proceed to the next screen. Modifications to defaults and the explanations are noted in the model output report. Comments in the "Remarks" box are also included in the report and alert reviewers of modifications to the defaults. Comments are instructive because they show the user's justification for the modifications, which allows the reviewers the ability to determine whether or not the modifications are appropriate and sufficiently justified.

The city generally recommends using the default values in CalEEMod to the extent detailed information about the project is not known at the time of analysis. However, where available, project-specific

information (e.g., land-use specifications of the project, results of traffic study, and predicted water usage) should be used. The same assumptions about end uses or occupants made for purposes of other studies (such as traffic or parking) should also be used for GHG quantification, to the extent feasible. For example, if an application for an industrial building assumes a certain mix of warehousing, manufacturing and/or office uses for parking requirement purposes, that same mix of uses should be input into the GHG model. Any changes in assumptions should be made clear in the project application and/or GHG study.

As a first step, all project information should be input into CalEEMod, and annual emissions generated for 2035 without any mitigation, or reduction measures, included. This unmitigated run of GHG emissions will serve as the baseline against which reduction measures can be estimated and compared. Depending on the type of reduction measure(s) chosen, multiple CalEEMod runs may be needed to show exact GHG reductions by emissions source and reduction measure. All operational GHG emissions shall be reported in units of $MTCO_2e$ per year. One-time GHG emissions (such as in carbon sequestration loss) and temporary emissions (such as related to site preparation and construction) shall be amortized over the life of the project, typically 30 years (South Coast Air Quality Management District 2008).

When quantifying project GHG emissions for purposes of determining whether a project is within the 900 $MTCO_2e$ screening threshold, the project's first full operational year shall be input into CalEEMod, rather than the CAP 2035 horizon year. For example, if a project is expected to be built and occupied by the beginning of 2019, then the CalEEMod operational year will be 2019. Also, for screening purposes, when a proposed project is replacing or expanding an existing use, two model runs are required (one for the existing use, and one for the replacement or expanded use) in order to determine the net GHG impact of the proposed project. In such cases, the CalEEMod operational year will be the same for both modeling scenarios.

QUANTIFYING LEGISLATIVE AND REGULATORY REDUCTIONS

Applicants may account for certain legislative and regulatory GHG reductions in their modeling if they are not already built into the CalEEMod model. Because the city's CAP sets a 2008 baseline, certain legislation and regulations that would be implemented through the 2035 horizon year have been accounted for in CAP projections and could therefore be applied to project emissions. The city's GHG forecast accounts for a variety of legislative actions that will reduce future emissions from the city, in conjunction with local action. Common legislative reductions include improved vehicle fuel efficiency standards, Title 24 Building Energy Efficiency Standards, Renewables Portfolio Standard (RPS), Pavley Clean Car Standards, and Low Carbon Fuel Standard (LCFS). Additionally, the CAP estimates GHG reductions resulting from assumed future rising gasoline prices.

While legislative reductions can be applied, it is important that applicants understand what current models already include. For example, the 2016 version of CalEEMod made a number of changes to update default data, legislation, and regulations (South Coast Air Quality Management District 2016). The newest version of CalEEMod now includes the 2013 update to the Title 24 Building Energy Efficiency Standards. The new 2016 Title 24 building energy efficiency standards (which became effective on January 1, 2017) may be included in the modeling by manually changing the CalEEMod inputs. Future reductions can also be applied to account for adopted statewide targets under the RPS to reach a 33 percent renewable mix in statewide electricity generation by 2020 and 50 percent by 2030. It is important to note that a number of fleet-related legislative reductions have already been accounted for in standard models such as EMFAC 2014 and ARB's OFFROAD 2011 and should not be double counted. This data is also incorporated into the latest version of CalEEMod. Fleet-related reductions accounted for in CalEEMod defaults includes the Advanced Clean Car Standards and an improving electric vehicle mix based on EMFAC2014.

See Appendix A for a more detailed list of legislation and regulations that applicants may include in their project applications and/or GHG studies.

4.1.2 Quantifying New Reduction Measures

GHG reduction measures in proposed development projects that are not included in the CAP Consistency Checklist must be quantified. CalEEMod provides methods to estimate effectiveness of proposed mitigation measures. These mitigation measures are based on GHG reduction quantification guidance from CAPCOA and cover the land use, transportation, energy, water and solid waste sectors. Table 3 provides a summary description for select mitigation measures in CalEEMod that are not included in the CAP. This list is not meant to be all-inclusive and all measures may not be available in the city. Other measures may be considered at the city's discretion if they are deemed applicable to the project, and do not overlap or conflict with CAP measures. Further clarification on measures can be found in CalEEMod User's Guide and the CAPCOA Measures guidance document. The model applies the sectorial and global maximum reduction values (or caps) based on the project setting and combination of mitigation measures selected for the project; therefore, the usual reductions listed for each measure cannot simply be summed to determine total project emission reductions. It should be noted that while CalEEMod is the most widely used tool for this purpose and is recommended by the city to use, project applicants may choose to estimate reductions outside of CalEEMod, as long as substantiation is provided for city review.

For every GHG emission reduction measure included, the city recommends that the explanation be as detailed as possible. The replacement measure(s) shall:

- Clearly identify who is responsible for implementation, funding, monitoring, enforcement, and any required maintenance activities.
- The applicant shall also explain why the measure(s) will be effective in reducing emissions, why each measure is considered feasible, and which measure in the CAP it is replacing.
- The applicant's analysis must also provide sufficient evidence that the Checklist measure being replaced is truly infeasible[2] for the project, and why the substituted measure is equally as effective.

Table 3 List of CalEEMod Mitigation Measures Applicable to Reducing GHG Emissions

Measure #	Measure Name	Measure Description
CalEEMod Traffic Tab: Land Use & Site Enhancement Measures		
LUT-6	Integrate Below Market Rate Housing	Incorporates affordable housing
CalEEMod Traffic Tab: Neighborhood Enhancement Measures		
SDT-3	Implement NEV Network	Project provides a viable NEV network
CalEEMod Traffic Tab: Transit Improvement Measures		
TST-1	Provide BRT System	Establish a Bus Rapid Transit line with permanent operational funding stream
TST-3	Expand Transit Network	Establishes or enhances bus line with permanent operational funding stream
TST-4	Increase Transit Frequency	Reduces headways of existing transit

[2] As defined by CEQA Guidelines Article 20, Section 15364.

Table 3 List of CalEEMod Mitigation Measures Applicable to Reducing GHG Emissions

Measure #	Measure Name	Measure Description
CalEEMod Energy Tab: Building Energy Measures		
BE-1	Exceed Title 24 Standards	Use less energy than required by Title 24, latest edition
BE-4	Energy Efficient Appliances	Use appliances more energy efficient than standard models
CalEEMod Energy Tab: Alternative Energy Measures		
AE-1	Onsite Renewable Energy	Establish on-site renewable energy. (No Ozone Precursor reductions if NOx intensity is higher than electric utility.)
CalEEMod Water Tab: Water Conservation Strategy		
WUW-2	Apply Water Conservation Strategy	Reduce indoor and outdoor water use
CalEEMod Water Tab: Water Supply		
WSW-1	Use Reclaimed Water	Project utilizes non-potable water
CalEEMod Water Tab: Indoor Water Use		
WUW-1	Install Low-Flow Bathroom Faucet	Reduce Indoor water use with low-flow fixtures
	Install Low-Flow Kitchen Faucet	
	Install Low-flow Toilet	
	Install Low-flow Shower	
CalEEMod Water Tab: Outdoor Water Use		
WUW-5	Reduce Turf in Landscapes and Lawns	Use less turf than normal projects
WUW-4	Use Water-Efficient Irrigation Systems	Install a smart irrigation control system
WUW-3	Water Efficient Landscape	Plant native or drought-resistant trees and vegetation
CalEEMod Solid Waste Tab		
SW-1	Institute Recycling and Composting Services	Project Recycles, Reduces, and Reuses

Notes: Reflects measures in CalEEMod V 2016.3.1

BRT = Bus Rapid Transit, ITE = Institute of Transportation Engineers, NEV = Neighborhood Electric Vehicle

Any measures incorporated into a Self-developed Program must be above and beyond regulatory requirements and CAP Consistency Checklist measures, if applicable. For example, a project may include onsite renewable energy systems that exceed the requirements of the Checklist. In that case, GHG reductions that are additive to Checklist requirements should be quantified.

Source: CAPCOA 2016b

CALEEMOD MITIGATION MEASURE EXAMPLES

This section provides a demonstration of how to utilize CalEEMod to quantify GHG reductions from certain mitigation measures. The first example shows how mitigation in CalEEMod can expand upon commitments outlined in the CAP, while the second is an example of a measure not included in the CAP for new development projects. Each example includes information about the specific reductions that might be achieved by the measure. Measures in this section have been substantiated through research identified by a comprehensive literature review including CAPCOA's Measures guidance document. Applicants may research and develop additional measures, in consultation with the city, that would achieve reductions that are both quantifiable and substantiated.

Alternative Energy 1: Onsite Renewable Energy

Measure Description: The measure can be used when a proposed project would generate electricity onsite using renewable or carbon-neutral power systems which displaces electricity use normally supplied by the local utility, and would expand upon current CAP reduction strategies regarding inclusion of solar photovoltaic (PV) systems in residential, commercial, or industrial projects. Life of an on-site project is

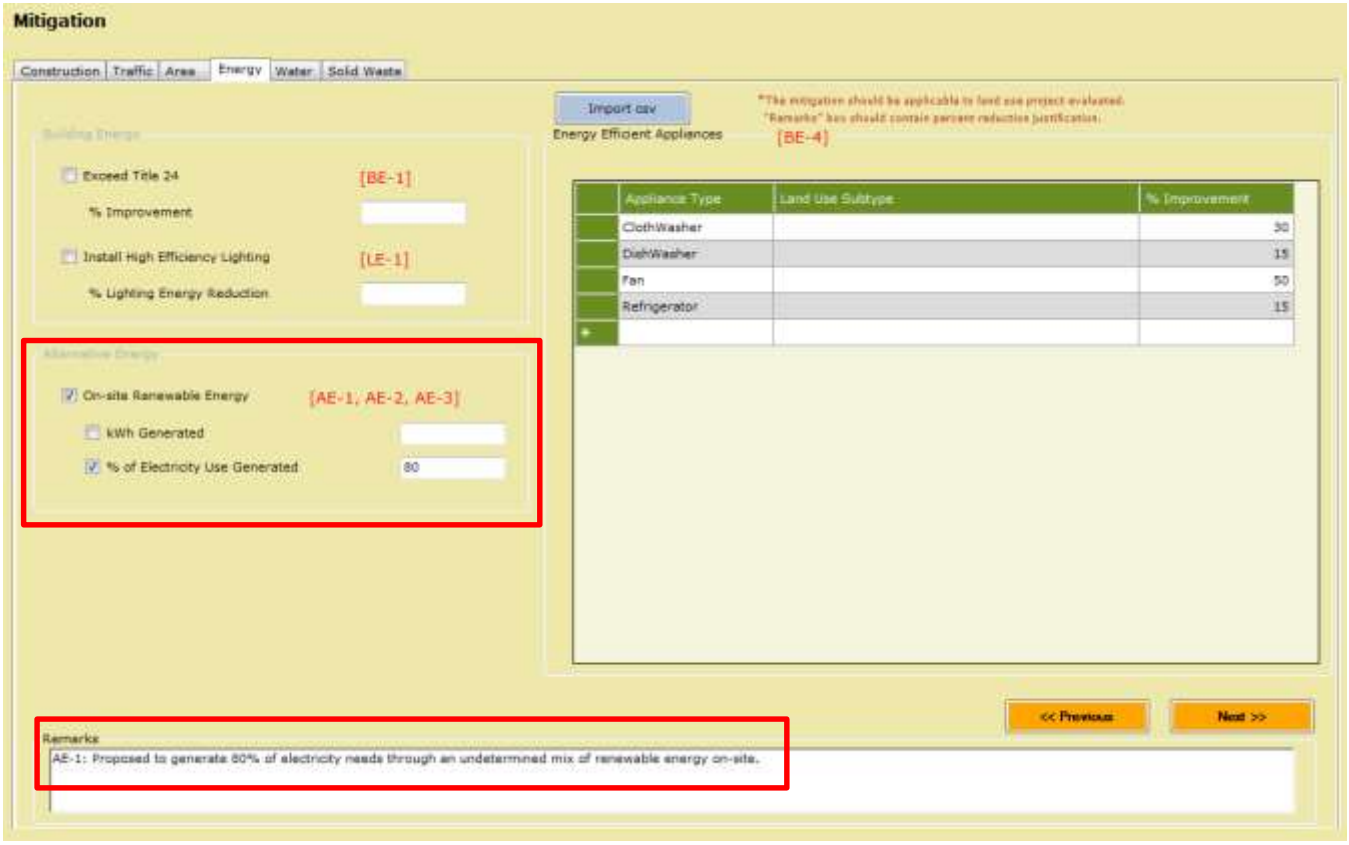
assumed to be 20 years. Implementation of this alternate measure would assume that the amount of renewable energy exceeds the amounts cited in the CAP Checklist (i.e., Step 2 Question 1).

Applicability for GHG: The measure would apply to any land use that uses electricity.

Reduction Potential: Zero to 100 percent electricity use.

Example: A commercial development has proposed to generate 80% of its electricity needs through an undetermined mix of renewable energy on-site. Because the city's CAP measure states that 45 percent of a nonresidential project's energy use must come from solar PV, the incremental reduction beyond the 45 percent requirement may be credited towards the project in lieu of another Checklist measure that may achieve the same reduction. The applicant must first report the amount of emissions that would result if 45 percent of energy use were from renewable sources. The applicant would then have to run the same model, applying the 80 percent renewable generation and take the difference between the two runs to get the incremental change from the proposed measure. To apply this mitigation, the applicant would first select the box "On-site renewable energy" as well as "% of Electricity Use Generated" and type "45" or "80" into the associated field. See image below for more detail.

Screenshot of Mitigation Measure AE-1 in CalEEMod



Reference: *See measure AE-1 on page 125 of the CAPCOA's Measures guidance document.*

Water Supply 1: Using Reclaimed Water

Measure Description: A proposed project using this measure must calculate the amount of reclaimed water used instead of new potable water supplies for outdoor water uses or other non-potable water uses. A lower amount of energy is needed to collect, treat, and redistribute reclaimed water compared to new potable water supplies. The applicant must commit to using a percentage of reclaimed water and provide the total amount of reclaimed and non-potable water to be used by the project. If indoor reclaimed water

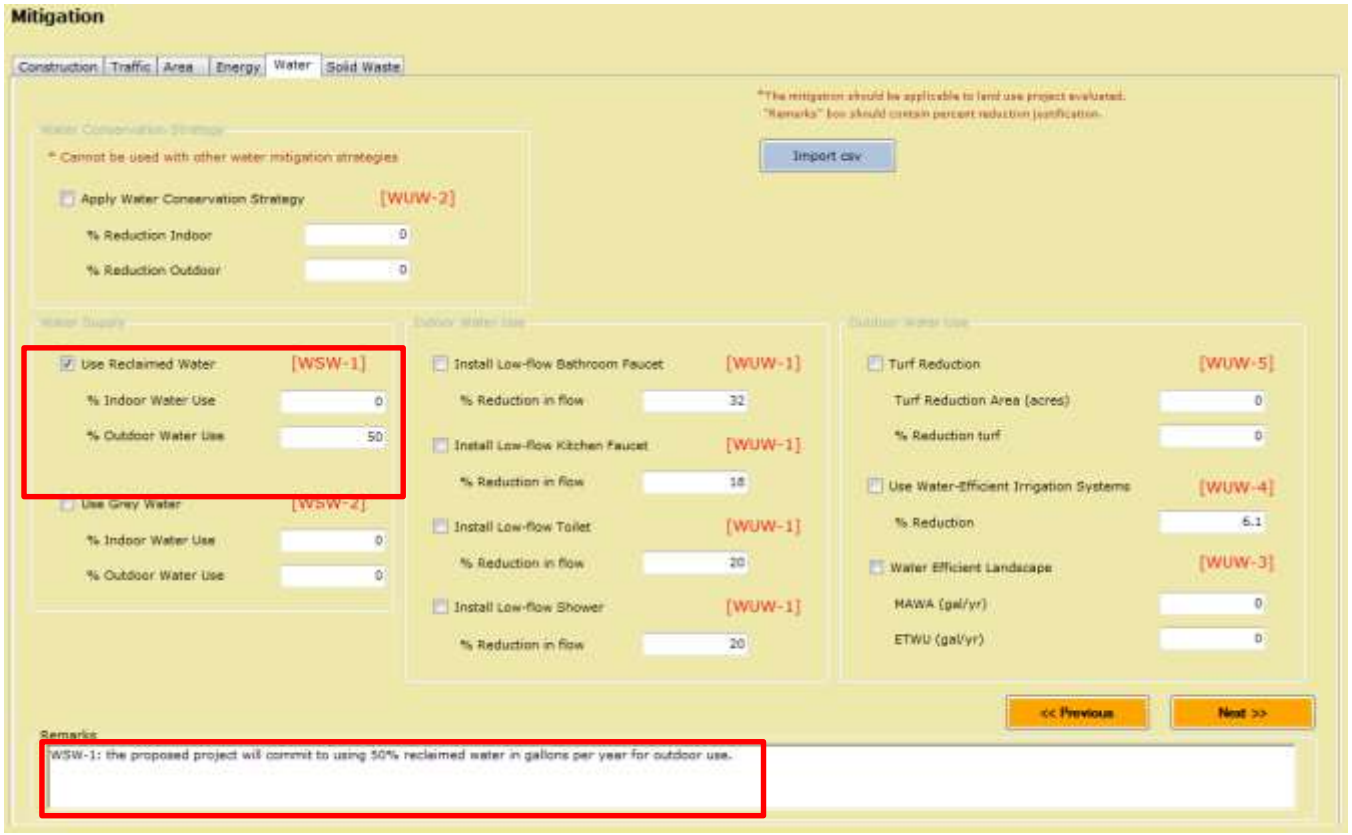
uses are anticipated, indoor and outdoor usage for the project must be documented separately for use of this measure in CalEEMod. Water demand should be calculated prior to calculating water supply reductions. Project water demand (indoor and outdoor) calculated for the project in CalEEMod's Operational Water and Wastewater tab should be compared to project applicant calculations for water demand. CalEEMod may be modified to reflect project specific water demand calculations rather than using the default calculations.

Applicability for GHG: This measure is applicable to all land use types across all project settings (urban, suburban, etc.). Outdoor water use is primarily expected to benefit from this measure. This measure could overlap with graywater use which is a Checklist question, so the project should not "double count" reductions of potable water from this measure.

Reduction Potential: Zero to 40 percent of GHG from outdoor or non-potable water uses.

Example: If the proposed project will use 50 million gallons of water a year for outdoor use and commits to using 25 million gallons of reclaimed water for outdoor use as mitigation, the applicant may select the "Use Reclaimed Water" checkbox and may type "50" in the field titled "% Outdoor Water Use." See image below for more detail.

Screenshot of Mitigation Measure WSW-1 in CalEEMod



Reference: *See Measure WSW-1 on Page 332 of the CAPCOA's Measures guidance document*

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APPENDIX A: LIST OF LEGISLATIVE AND REGULATORY REDUCTIONS

Below is a list of legislative and regulatory reductions that applicants could apply to their modeling, along with reductions that are already being accounted for in the newest version of CalEEMod 2016. Application will be reviewed on a case-by-case basis.

Note: This list will be updated and refined, as needed, to reflect changes in legislation and regulations, and future updates to CalEEMod.

Allowed Reductions

State Legislation/Regulation	Reduction Amount	Notes
2016 Title 24 (T24) Building Energy Efficiency Standards	28% Residential, 5% Commercial from 2013 T24	2016 T24 effective 1/1/2017. Reduction may be applied only to T24 component of electricity and gas use in CalEEMod.
Renewables Portfolio Standard (RPS)	33% by 2020, 50% by 2030	See http://www.cpuc.ca.gov/renewables/ Reductions should be taken after accounting for 2016 T24 energy efficiency reduction. Reduction may also be applied to water-related energy use.
Incremental increase in solid waste diversion	25%	Difference between AB 341 and AB 939.

Reductions Already Accounted for in CalEEMod (Version 2016.3.1)

State Legislation/Regulation	Notes
2013 T24 Building Energy Efficiency Standards	
Advanced Clean Car Standards	